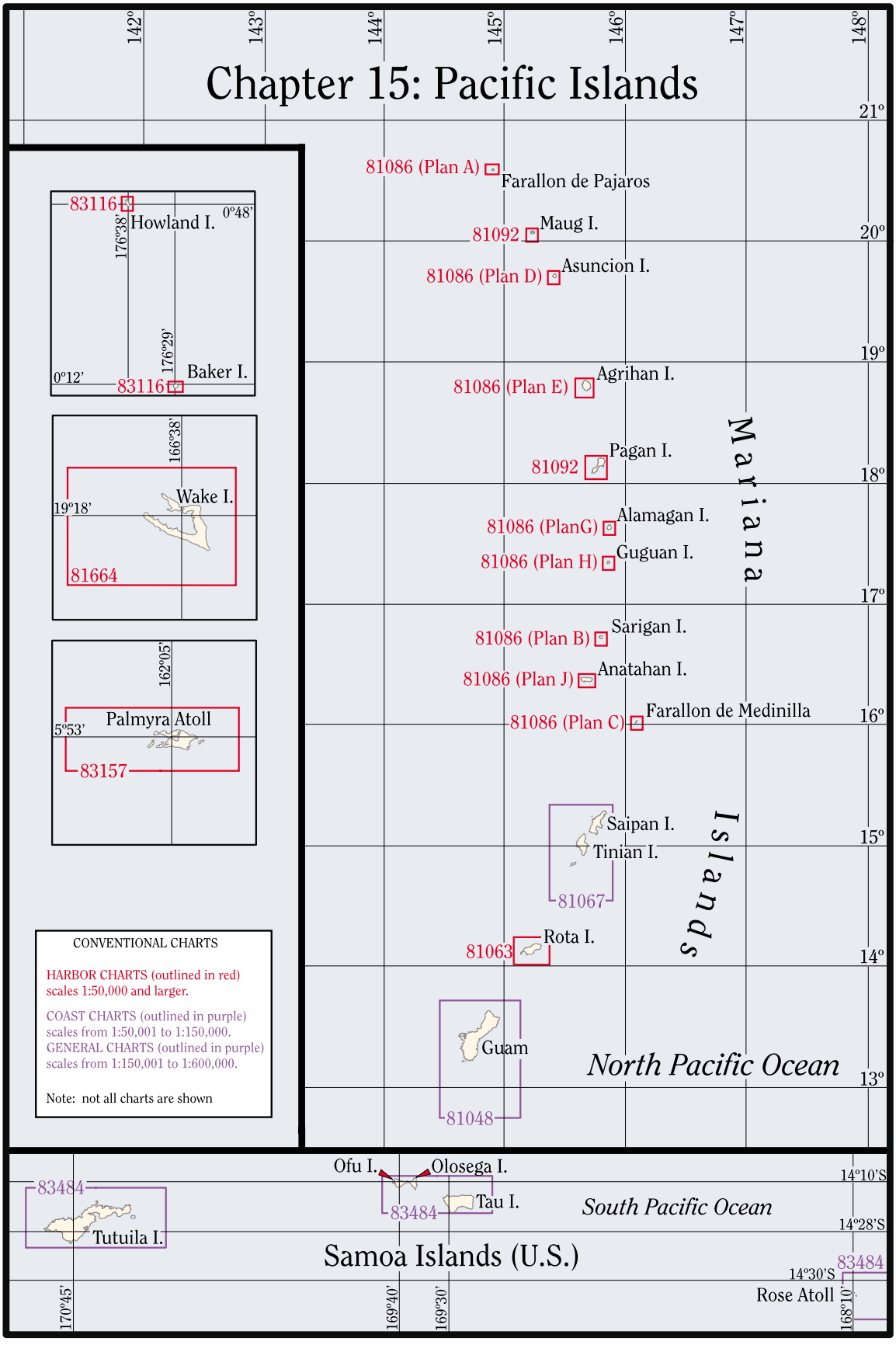
Chapter 15: Pacific Islands
142°
143°
144°
145°
146°
147°
148°
21°
20°
19°
18°
17°
16°
15°
14°
13°
83116
Howland I.
0°48'
176°38'
176°29'
0°12'
Baker I.
83116
166°38'
19°18'
Wake I.
81664
162°05'
5°53'
Palmyra Atoll
83157
81086 (Plan A)
Farallon de Pajaros
81092
Maug I.
81086 (Plan D)
Asuncion I.
81086 (Plan E)
Agrihan I.
81092
Pagan I.
81086 (PlanG)
Alamagan I.
81086 (Plan H)
Guguan I.
81086 (Plan B)
Sarigan I.
81086 (Plan J)
Anatahan I.
81086 (Plan C)
Farallon de Medinilla
Saipan I.
Tinian I.
81067
81063
Rota I.
Guam
81048
Mariana
Islands
North Pacific Ocean
CONVENTIONAL CHARTS
HARBOR CHARTS (outlined in red) scales 1:50,000 and larger.
COAST CHARTS (outlined in purple) scales from 1:50,001 to 1:150,000.
GENERAL CHARTS (outlined in purple) scales from 1:150,001 to 1:600,000.
Note: not all charts are shown
83484
Tutuila I.
Ofu I.
Olosega I.
83484
Tau I.
South Pacific Ocean
Samoa Islands (U.S.)
14°10'S
14°28'S
14°30'S
83484
Rose Atoll
170°45'
169°40'
169°30'
168°10'

# Pacific Islands

(1) Islands and Pacific waters discussed in this chapter are other than those of the Hawai'ian Archipelago. See chapter 14, Hawaii, for the latter.

## Chart 83116

(2) **Howland Island** (0°48'N., 176°38'W.), **Baker Island** (0°12'N., 176°28'W.), and **Jarvis Island** (0°23' S., 160°01'W.) are National Wildlife Refuges (see National Wildlife Refuges, following).

## Chart 83484

(3) **Tutuila Island** (14°19'S., 170°42'W.) **Tau Island** (14°15'S., 169°28'W.), and **Rose Atoll** (14°33'S., 168°09'W.) are part of **American Samoa**. The capital of American Samoa, **Pago Pago**, is located on the S shore of Tutuila Island. Pago Pago is a natural harbor entered between **Breakers Point** and **Niuloa Point**. The harbor is fringed by ledges which extend to 0.3 mile offshore on the W and E side. **Taema Bank**, about 2.5 miles long and running parallel to the shore, is about 1.6 miles SE of the harbor entrance and has a depth of 4 fathoms. The bank is marked by a lighted buoy at its SW end. A **342°** lighted range marks the entrance to Pago Pago Harbor and leads between the two principal dangers in the harbor; **Whale Rock** covered 2 fathoms and marked by a lighted buoy on the E side and **Toasa Rock** covered 2 feet and marked by a buoy on the SW side.

(4) Pilotage in Pago Pago is not compulsory, but is advised, and a Pilot is available 24 hours a day. Pago Pago Harbor Control may be contacted on VHF channel 16. Pilotage fees are charged whether or not a pilot is used. Good anchorage is available within the inner harbor in depths of 11 to 46 meters with mud and sand bottom, but vessels of 1,000 GRT or more should not anchor in less than 29 meters of water because the harbor is narrow and restricted for swing. Rose Atoll is a National Wildlife Refuge (see National Wildlife Refuges, following).

### National Wildlife Refuges, American Samoa

(5) The National Wildlife Refuges of Rose Atoll (American Samoa), Howland Island, Baker Island, Jarvis Island, and Palmyra Atoll are administered by the U.S. Fish and Wildlife Service, Department of the Interior. The refuge boundaries extend outward to the 3-mile limit, except Palmyra Atoll with an outward boundary of 12 miles. Entry into the refuge without a permit is prohibited, except in an emergency. An entry permit is obtained from Refuge Manager, Hawai'ian/Pacific Islands National Wildlife Refuge Complex (see appendix, under Department of Interior (indexed as such), for address).

(6) **Fagatele Bay National Marine Sanctuary** is on the S shore of Tutuila Island (See **15 CFR 922**, chapter 2, for limits and regulations.)

## Chart 83157

### Palmyra Atoll (Palmyra Island) (05°53'N., 162°05'W.)

(7) Palmyra Atoll (Palmyra Island) is about 780 miles SSW of the island of Hawaii and is a National Wildlife Refuge (see National Wildlife Refuges, this chapter.)

## Chart 81664

### Wake Island (19°16'N., 166°40'E.)

(8) Wake Island lies in the Pacific Ocean on the direct route from Hawaii to Hong Kong. The island is administered by the U.S. Air Force.

(9) See Sailing Directions (Enroute) for the Pacific Islands (Pub. 126), published by the National Geospatial-Intelligence Agency, for detail on the preceding islands.

### COLREGS Demarcation Lines

(10) The lines established for U.S. Pacific Island Possessions are described in 80.1495, chapter 2.

## Chart 81004

### Mariana Islands

(11) Mariana Islands are comprised of the **Northern Marianas** and **Guam**. The Northern Marianas, a self-governing U. S. commonwealth consists of a chain of 16 volcanic islands, which extend in a N and S

direction for a distance of about 450 miles. The islands in the group from N to S are Farallon de Pajaros, Maug, Asuncion, Agrihan, Pagan, Alamagan, Guguan, Sarigan, Anatahan, Farallon de Medinilla, Saipan, Tinian, Aguijan, and Rota. Except for Maug, which is a cluster of three tiny islands, all are single islands which rise precipitously as mountain peaks of rocky, volcanic material and are conspicuous from the offing. They are a good radar target from a distance of 14 miles, but are reported to give a poor return from a distance of 28 miles. Their total area is approximately 184 square miles. The three principal islands, Saipan (47 square miles), Tinian (39 square miles) and Rota (32 square miles) form two-thirds of the land area of the group.

**Guam (13°25'N., 144°44'E.)**

(12) Guam, a U.S. territory since 1898, is not included in the Northern Marianas. Guam is the largest and most southern island of the Marianas Archipelago. The island is about 30 miles long and varies from 4 to 8 miles in width. Guam is not discussed further in the Coast Pilot; see Sailing Directions (Enroute) for the Pacific Islands, Pub. 126, for further description of Guam.

**Weather, Pacific Islands**

(13) The islands of the Marianas Archipelago have similar weather conditions. Under ordinary circumstances, the wind and seas in the vicinity of Guam are easterly due to the Northeast Trades. Westerly winds are at times experienced during the summer months as Guam is barely within the limits of the Southwest Monsoon. These winds are light as a rule. In the vicinity of Guam, northeasterly and east-northeasterly winds prevail for 6 months of the year. These winds blow from the northeast to east 65% of the time between December and May, and are strongest during these months. Between June and November, the surface winds are quite variable; calms are rare. In the southerly islands, the winds show a slight southerly trend as early as May.

(14) In the vicinity of the islands of Saipan and Tinian, the steadiest winds occur when the winter monsoon and the NE Trades reinforce each other. Between November and April, NE and easterly winds prevail 70% of the time at rates of 10 to 12 knots. During the summer monsoon (May to October) easterly winds predominate, but southerly to westerly winds also occur. Wind velocities are about 10 to 11 knots from May to July, and 8 knots from August to October. Land mass effect modifies the maritime diurnal variations so that the surface winds are strongest at 0300 and weakest at 1400.

(15) In the vicinity of Pagan Island, the winds are steadiest during the Northeast Monsoon (November through March). They blow mostly from the NE at an average rate of 15 knots. From April through June, the monsoon weakens and the prevailing winds become more easterly. During the wet season (June through November), easterly winds continue to predominate, but with considerable percentages from southerly to westerly directions. The winds are mostly light; the only strong winds occurring with typhoons.

(16) Precipitation increases decidedly during the summer months, especially in the southern islands. The wet season (July through October) has a mean monthly average of 10 inches (254 mm) or more. The major rainfall consists of heavy showers. As a rule, the rainfall diminishes as the latitude increases.

(17) The rainy season at Guam is from the first of July until the early part of November, with a monthly average of 11 to 15 inches (279 to 381 mm). January through June is the driest period, with an average monthly fall of 3.9 to 6.5 inches (99 to 165 mm). March is the driest month with an average precipitation amount of 3.9 inches (99 mm). The mean average rainfall is about 101 inches annually (2565 mm) but has ranged from 165 inches (4191 mm) in 1976 to 67 inches (1702 mm) in 1973. An average of 30 thunderstorms each year effect the island of Guam. The most active month is August.

(18) The rainy season at the islands of Saipan and Tinian is from July to November; the dry season lasts from December through June. During the rainy season, with the doldrums belt lying almost directly over these islands, there are increased showers and numerous thunderstorms and squalls. The dry season is characterized by fair weather, interrupted by fronts associated with northerly low pressure centers and some showers. Saipan Island has an average rainfall of 86 inches (2184 mm) per year with a monthly average of 13 inches (330 mm). During the rainy season (July through October) it averages 13 inches (330 mm) per month. Throughout the rest of the year, the average is about 4 inches (102 mm) per month. April is the driest month with an average of about 2¾ inches (70 mm).

(19) Typhoons frequently form south and east of the Mariana Archipelago and routinely pass in the vicinity of these islands. They are apt to occur more often during the summer months and are accompanied by high winds and torrential rains. They seldom occur during the winter months.

(20) Tropical disturbances often occur in the vicinity of Guam. Since 1842, at least 51 tropical cyclones have come within 25 miles (46 km) of Guam and another 49 have come within 50 miles (93 km) of the island. Since 1980, nine tropical cyclones have come within 25 miles (46 km) of the island and another 11 within 50 miles (93 km) of the island. As recently as August 1992, before attaining super typhoon status, Typhoon Omar

raked the island with winds of 105 knots and gusts in excess of 140 knots. Omar was the most damaging typhoon to strike Guam since Typhoon Pamela in 1976. Omar caused an estimated $457 million of damage and destroyed or severely damaged over 2,158 homes.

(21) Tropical disturbances occur between August and January in the vicinity of the islands of Saipan and Tinian. Since 1842, at least 51 tropical cyclones have come within 25 miles (46 km) of Saipan and another 53 have come within 50 miles (93 km) of the island. Since 1980, 15 tropical cyclones have come within 25 miles (46 km) of the island while an additional 15 have come within 50 miles (93 km) of the island. As recently as December 3, 1986, Super Typhoon Kim passed only 18 miles (33 km) north of Saipan and raked the island with 135 knot winds and record rainfall.

(22) Tropical disturbances usually pass well to the south of Pagan Island, but several have been experienced. August, September and October are the most likely months. January through April is the only period believed to be entirely free of such storms. Probably not more than one a year pass close enough to affect Pagan Island.

(23) Gales, other than those of tropical origination, seldom occur in the vicinity of the islands of Tinian and Saipan. Winds reach gale force in the vicinity of Pagan Island from 2 to 4% of the time.

(24) Thunderstorms occur frequently from July to the early part of November. December through May are the months that are relatively free from thunderstorms.

(25) In Guam, the mean temperature is 79°F (26.1°C), the mean maximum is 86°F (30°C), and the mean minimum is 72°F (22.2°C). The temperatures for the rest of the Mariana Islands are quite uniform throughout the year. January and February are the coolest months. The nights are cooler in the northern islands. Temperatures above 85°F (29.4°C) normally occur from 25 to 28 days a month between April and August. The daily minimums seldom fall below 74°F (23.3°C) during the summer months. The yearly RANGE of temperatures is 3°F (2°C) in the south and 7°F (4°C) in the north. The daily RAnge is about 10°F (6°C). The extreme maximum temperature on Guam is 95°F (35°C) recorded in September 1957 and the extreme minimum is 54°F (12.8°C) recorded in March 1965.

(26) In Saipan, the mean temperature is 82°F (27.8°C), the mean maximum is 86° (30°C), and the mean minimum is 77°F (25°C). Extremes include a maximum of 104°F (40°C) recorded in May 1977 and September 1987 and an extreme minimum of 60°F (15.6°C) recorded in March 1975.

(27) Humidity is high throughout the year, but there is somewhat less humidity from December through May. The yearly average is about 76%. The January average is 68% and the June average is 84%.

(28) Fog and mist are rarely reported in the Guam, Saipan- Tinian areas. Visibility of less than ¼ miles (2 km) can be expected on less than one day per month. The occurrence of fog averages only one to two days each year.

(29) The yearly average cloud cover is about 7/10 (70%). The maximum coverage of 8/10 to 9/10 occurs during the summer months (July to October). Cloudiness is higher over the islands than over the adjacent seas. Clouds are more frequent during the daytime.

### Tides-Currents

(30) See Sailing Directions (Planning Guide) for the South Pacific Ocean (Pub. 122), for general information on tides, currents, and tidal currents in the region.

(31) Currents in the vicinity of the Mariana Islands are for the most part westerly. They are strongest near to and south of Saipan Island, and gradually become weaker north of that island. In June, the Equatorial Drift Current was reported to be strongest during that season in the parallel of 13° N. and to run to the northwest at a maximum rate of 1 knot. In October, a westerly current of 1 knot to 1½ knots was reported to have been experienced up to 20 miles east of Guguan Island, but little or no current was experienced north of that island.

(32) Variable currents are sometimes encountered near the islands. These are caused by the physical makeup of the island and by the additional force of the tidal currents.

(33) An almost constant southwesterly set has been reported along the northwest coast of Guam during the Northeast Trades. This current has been felt up to 10 miles offshore.

(34) In the vicinity of the Mariana Islands, the flood current usually sets westerly and ebb easterly; the tidal currents turn at the approximate times of high and low water. These currents are usually weak, except in narrow passages, and their directions and rates are sometimes variable. The tidal currents are usually confused and irregular off the east sides of these islands, due to the configuration of the land.

(35) **Rota Island** (14°10'N., 145°12'E.), of volcanic formation, is about 32 miles northeast of Guam. The northeast part consists of a plateau 522 feet (159 meters) high; southwesterly part is a low sandy isthmus. The shore of Rota is generally steep and rocky except at the southwest tip; a narrow coral reef nearly fringes the entire island. Rota rises to 1,611 feet (491 meters) in its west-central part.

(36) **Caution.**–A naval operating area is off the north shore of Rota.

(37) **Harnom Point (Puntan Taipingot)** (14°07'N., 145°07'E) is the south end of **Taipingot**, a prominent headland that forms the southwesterly end of Rota Island. A conspicuous chimney, 157 feet (48 meters) high, is almost 1½ miles northeast of Harnom Point. A **118°** lighted Range is just west of the chimney.

(38) **Sasanhaya Bay** is east of Taipingot and at its head is the village of Rota (Songsong). A flagstaff and a conspicuous white school are in the village.

### Tidal currents

(39) The diurnal inequality is considerable. The flood attains a rate of ½ knot. The flood sets southerly, the ebb northerly; turning at about the time of high and low water.

### Anchorages

(40) Sasanhaya Bay affords the only anchorage in Rota. However, a swell sets in with winds from any direction except northeast. When northeasterly winds are strong, they often blow down from the steeps slopes at the inner part of the bay. Anchorage may be found in depth of 16 fathoms (29 meters), about 900 yards south of the flagstaff. During northeasterly winds, good anchorage may be found off the easterly side of the bay with the Range beacons in line bearing 054° and the lone beacon, lying 0.4 mile south of the Range beacons, bearing 134°.

(41) **Sansanlago Bay**, situated on the northwest side of the Taipingot Peninsula, affords some shelter during southeasterly winds, about 2/3 mile west-northwest of the flagstaff.

### Off-lying Danger

(42) A bank with a depth of 22 fathoms (40 meters) is about 120 miles, 273° from Harnom Point (Puntan Taipingot).

(43) **Aguijan Island** (14°51'N., 145°33'E.) is about 022°, 42 miles from Rota Island, and it has steep, cliffy and inaccessible shores. Naftan Rock is about ½ mile southwest of the island's southwest end.

### Off-lying banks and dangers

(44) **Esmeralda Bank**, about 17 miles northwest of Aguijan Island, has a least depth of about 33 fathoms (60 meters), and can be recognized by the discoloration of the water, which has the appearance of sulphur being emitted. A 30 fathom (54 meters) bank , marked by boiling sulphur, is about 20 miles northwest of Aguijan Island. Other banks with greater depths are charted in this vicinity.

(45) A bank, with a depth of 19 fathoms (34 meters) over it, is about 5 miles southwest of Aguijan Island.

(46) **Tatsumi Reef**, centered about 2 miles southeast of the southern end of Tinian Island, is on the northeast side of Tinian Channel. A patch with a depth of 13 fathoms (24 meters) over it is 14 miles west of the north end of Tinian Island.

(47) **Tinian Island** (15°00'N., 145°38'E.) is northeast of Aguijan Island and it is separated from it by Tinian Channel. The north end of the island is low and flat.

(48) Tinian Island is an experimental cattle raising center. The island is extensively cultivated; vegetables and produce are shipped to Guam. Tinian is a transfer point for tuna purse seiners. An inter-island tug and barge reportedly visits the island several times a week. The population was 899 (1980).

### Aspect-Landmarks

(49) **Lasso Hill**, 564 feet (172 meters) high, is the summit of the island and lies about 3¾ miles south of the north end of Tinian Island. **Maga Hill**, a mile northwest of Lasso Hill, is joined to the latter by a ridge. The land south of this ridge is sloping and for the most part cultivated.

(50) An extensive ridge is located along the east side of the south part of the island, between **Carolinas (Lalo) Point** and **Masalog Point**. The coast between these points is faced by a sheer cliff. The broad and cultivated land in the central part of the island gives way to narrow and successively lower terraces near the coast. These levels are separated by steep slopes or cliffs. Sandy beaches are found near the town of Tinian and in the bay between Masalog Point and Asiga.

(51) A conspicuous church tower, with a silver-colored dome, is about 2/3 mile north of the head of the breakwater.

(52) There is a conspicuous radio tower on Lasso Hill and a chimney in the town of Tinian.

(53) Many charted landmarks were either nonexistent or were overgrown with foliage (1963).

(54) **Sunharon Roads** is the name given to the area lying off the southwestern shore of Tinian Island, fronting the town, and including the swept area best shown on the chart.

(55) The inner harbor area off Tinian is protected from the sea by a breakwater constructed on the reef that fronts the town. The north end of the breakwater was (1981) in ruins. Ships drawing 25 feet (7.6 meters) can berth. A buoyed channel, 250 yards wide and dredged to 28 feet (8.5 meters), is entered about ½ mile south of

the head of the breakwater. The channel leads northeast and northwest to the docks. The northerly leg of the channel is about 175 yards wide. Depths of 28 feet (8.5 meters) to 31 feet (9.5 meters) were reported east of the east end of the breakwater.

(56) **Caution.**–Less water than charted was reported (1970) in the channel, harbor, and pier area.

### Tides-Currents

(57) At times the tides will become diurnal around the time of the moon's maximum declination. The currents set northwest on the flood and southeast on the ebb; attaining rates of about a knot and turning at about the times of high and low water.

(58) In February-March 1994, the USS BEAUFORT reported the Range of tide to be 2 feet.

### Wharves

(59) Main Quay; length 2,000 feet; 22 to 32 feet (6.7 to 9.8 meters) alongside. Pier 1 and Pier 2, off the NW side of Main Quay, were reported in ruins and unserviceable in 1994.

### Pilotage, Saipan

(60) Vessels must obtain permission and acquire a pilot from the authorities at Saipan before entering the harbor. In 1994, it was reported that a pilot resided in Tinian. Entering and exiting port is permitted only during daylight hours and "Tinian Port Control" monitors VHF-FM channel 16.

### Anchorages

(61) Anchorage may be found, in depths of 10 to 20 fathoms (18.3 to 37 meters), sand and coral, good holding ground, off Tinian; however, it is unsafe during the Southwest Monsoon.

(62) During westerly winds anchorage may be found in a bay on the northeast side of Tinian Island between Masalog and Asiga Points, in depths of 15 to 25 fathoms (27 to 46 meters); however, this anchorage is reported untenable during strong easterly and north-easterly winds.

(63) **Explosive anchorages** are off the west shore of Tinian Island, off **Gurguan Point** (see **110.239**, chapter 2, for limits and regulations).

(64) A **security zone** is off the west shore of Tinian Island, between Gurguan Point and the village of Tinian (see **165.1403**, chapter 2, for limits and regulations).

### Routes

(65) A course of **035°** leads through the first leg of the channel to a position southeast of the outer end of the breakwater, then a course of **336°** leads to the main quay.

(66) **Saipan Island** (15°10'N., 145°45'E.), the second largest of the Mariana Islands, is northeast of Tinian Island and is separated from it by **Saipan Channel**. Saipan Channel is deep and clear of known dangers.

### Aspect-landmarks

(67) A chain of mountains, the summit of which is **Ogso Tagpochau**, 1,555 feet (474 meters) high, a conspicuous, conical, extinct volcano, lines the center of the island in a north-south direction. The east peninsula and the south part of the island are low flat plateaus. Some relatively level areas are found on the north end and northwest and west sides of the island, between the coast and the lower slopes of the ridge. These areas are, for the most part, cultivated. The land on the west and northwest sides slopes down to the beaches. The northeast and southeast shores of the island are formed by rugged, rocky cliffs.

(68) The west and northwest shores are fronted by barrier reefs, within which are shallow lagoons. Detached dangers and foul ground containing many coral heads, with depths of 3 fathoms (5.5 meters) or less, extend about a mile southwest from the southwest extremity of the barrier reef that fronts the northwesterly end of the island. A number of detached dangers lie south of this foul ground, along the edges of the swept anchorages areas.

(69) Vessels approaching the island will first sight Ogso Tagpochau. Vessels passing south of the island will next sight **Mount Fina Sisu**, the 295-foot (90-meter) summit, located 2¾ miles south-southwest of the above peak. This summit, when first seen, appears as a detached island. **Isleta Managaha (Maniagassa Island)**, located off the northwest coast, appears as a destroyer when viewed from the west.

### Tidal Currents

(70) Tidal currents in Saipan Channel set northwesterly at a rate of 2½ knots on the flood and southeasterly at 1¼ knots on the ebb; turning at about the times of high and low water. In the outer anchorage of Saipan Harbor, the tidal currents are irregular, with a maximum west- northwest set of about 2 knots during the flood. In Garapan Anchorage, the tidal currents set northerly at rates of ½ to 1 knot during the flood and southwesterly at rates of ½ to ¾ knot during the ebb. In Puetton Tanapag the tidal currents set north on the flood and south on the ebb, neither exceeding a rate of ¾ knot. They appear to turn at times of high and low water.

(71) **Saipan Harbor** (15°12'N., 145°41'E.), lying on the west side of Saipan Island, includes the outer anchorage, **Garapan Anchorage** and **Puetton Tanapag,** the inner harbor. The outer part of the harbor has been swept

to a depth of about 52 feet (16 meters). The inner part, outside a distance of about a mile from the shore, has been swept to a least depth of about 33 feet (10.1 meters).

(72) An abandoned lighthouse, 43 feet (13.1 meters) high, white circular concrete structure, stands at an elevation of 375 feet (114 meters), about a mile northeastward of the pier at Garapan. Two radio masts, marked by obstruction lights, are close to the abandoned lighthouse. Many wrecks are in the harbor.

(73) Saipan Harbor is reported to be radar conspicuous at a distance of about 20 miles.

(74) The northern part of Saipan Harbor, **Puetton Tanapag**, is entered through a dredged channel. In March 1999-August 2003, the channel had a controlling depth of 31 feet to the basin, thence depths of 36 to 40 feet were available in the basin.

### Wharves

(75) Pier C; L-shaped; 500 feet berthing space, north side; 23-26 feet (7-8 meters) alongside.

### Pilotage

(76) Pilotage is compulsory; pilots board vessels in the vicinity of Tanapag Harbor Approach Lighted Buoy T.

### Anchorages

(77) The outer anchorage affords shelter during prevailing easterly winds, but none during infrequent westerly storms. This anchorage, which lies from 3 to 5 miles offshore, is suitable only as a temporary anchorage for large vessels.

(78) The inner anchorage, which includes Garapan Anchorage, contains numerous berths in 8 fathoms (14.6 meters) to over 30 fathoms (55 meters), holding ground fair to good, with coarse coral sand. This anchorage lies from 1 to 2 miles offshore.

(79) Vessels can anchor in 10 fathoms (18.3 meters), sand bottom, about 4/5 mile offshore, abreast **Mount Fina-Sisu**, off the village of **Chalan Kanoa**.

(80) Vessels can anchor in 12 to 14 fathoms (22 to 26 meters), coral bottom, in a position about 1½ miles off **Garapan**. The anchorage area in Puetton Tanapag has been dredged to a project depth of 30 feet (9.1 meters). A seaplane landing area is northward of the anchorage area.

(81) **Caution.**–A sewer outfall extends from a position about 200 yards southwest of the southwest corner of Pier C to a position about 600 yards north-northwest of the northwest corner of the same pier.

(82) Unexploded ordnance has been reported to lie within Anchorage Berth L8.

(83) Some mooring buoys are in the harbor.

### Routes

(84) Vessels entering Puetton Tanapag should make the approach with the light on Managaha ahead bearing **044°**, passing on either side of the fairway buoy. When approaching Lighted Buoy No. 3, course should be altered to **088°** with the harbor entrance lighted range lined up. This course leads into and through the harbor.

(85) **Bahia Laolao** (Bahia Laulau) is on the southeast side of Saipan Island affording the only shelter with the wind between west and north, but due to excessive depths it can not be recommended. Vessels may obtain anchorage in a depth of about 30 fathoms, about 600 yards offshore, south of the village of Laulau.

### Off-lying banks and dangers

(86) A bank, with a depth of 26 fathoms (48 meters) is about 9½ miles north-northeast of **Puntan Sabaneta** (15°17'N., 145°49'E.).

(87) **Arakane Reef**, about 175 miles west of Saipan Island, is a coral reef with a least depth of 30 feet (9.1 meters) over it. In 1945, a heavy swell was observed over Arakane Reef; discoloration was very noticeable. In 1969, mooring buoys were reported to be upon this reef.

(88) **Farallon de Medinilla** (16°01'N., 146°05'E.) 265 feet (81 meters) high, and guano-covered, has steep coasts forming precipes. Deep caves are found on the south and west shores. A chasm, located in the southern part of the island, separates that part from the north. Farallon de Medinilla was reported to be radar conspicuous from a distance of 23 miles. In 1967, the island was reported to lie 1½ miles east of its charted position.

(89) A rocky patch, with a depth of 10 fathoms (18.3 meters), is about 600 yards northeast of the north end of the island. Another bank is about ¼ mile further north. Both banks are marked by breakers in heavy weather. In 1964, a depth of 10 fathoms (18.3 meters) was reported to lie about 9¼ miles west by north of the northern extremity of Farallon de Medinilla.

(90) There is a temporary anchorage, in a depth of about 32 fathoms (59 meters), about 700 yards northwest of **Cape South**, the south end of the island.

(91) **Caution.**–Farallon de Medinilla is used as a bombing and strafing target complex by the U.S. Navy. Mariners are advised to avoid the area by as wide a margin as is practicable.

(92) **Anatahan Island** (16°22'N., 145°40'E), 2,585 (788 meters) high, is about 20 miles northwest of Farallon de Medinilla, and is of volcanic formation. The crater of a dormant volcano, which contains a wide grass-covered field, forms the summit of the island. The crater

wall has a peak on its east and west sides; the west one being quite sharp.

(93) Small vessels can anchor off the northern part of the west coast of Anatahan Island, about 600 yards offshore. A bank, with a depth of 37 fathoms (67 meters) over it, is about 18 miles east of Anatahan Island. In 1974, another bank with a depth of 35 fathom (64 meters) was reported to lie about 10 miles farther north-northeast of the island.

(94) In 1967, a depth of 12 fathoms (22 meters) was reported in 17°08'N., 143°15'E. An 8 fathom (14.6 meters) patch has been reported to be in 16°31'N., 143°08'E.

(95) **Sarigan Island** (16°43'N., 145°47'E.), lying about 20 miles northeast of Anatahan Island, is cone-shaped, wooded, and of volcanic origin; rising to a height of 1,801 feet (549 meters) in its southern part.

(96) A bank, with a depth of 12 fathoms (21.9 meters) is 5 miles north of Sarigan Island.

(97) **Zealandia Bank**, about 11 miles north-northeast of Sarigan Island, is comprised of two rocks that dry, lying ½ mile apart. The sea breaks on these rocks at all times and the breakers can be seen from a distance. It was reported that there was a depth of 11 fathoms (20.1 meters) around both rocks, and that there are no other dangers. A bank, with a depth of 51 fathoms (93 meters) over it, is 9 miles northwest of Zealandia Bank.

(98) **Guguan Island** (17°19'N., 145°51'E.), lying about 35 miles north of Sarigan Island, has two summits; the southern is 988 feet (300 meters), the north is 814 feet (248 meters) high, and is an active volcano. Guguan Island is reported to be a good radar target from a distance of 27 miles. A large quantity of sulphur covers the ground around the crater. When seen from east or west, the northern summit appears to be covered with snow. The coasts are steep, and there is vegetation and breadfruit trees.

(99) **Alamagan Island** (17°36'N., 145°50'E.), lying 15 miles north of Guguan Island, is an inactive volcano with two peaks; the higher being 2,441 feet (744 meters). The island is reported to be radar conspicuous at a distance of 31 miles. The shores are lined with rocks and the southeast side is a steep slope of bare lava. There is a hot spring at the north end of the west coast.

(100) Shoals with depths 35 and 26 fathoms (64 and 48 meters) were reported (1946 and 1970, respectively) to lie about 165 miles west of Alamagan Island. A bank, with a least depth of 60 feet (18.3 meters) over it, lies 27 miles north-northeast of the above 35 fathom (64 meters) shoal.

### Anchorage

(101) Anchorage may be found, during northeasterly winds, off the southwest side of Alamagan Island, about 600 yards offshore, in 12 fathoms (22 meters), sand bottom.

(102) **Pagan Island** (18°07'N., 145°47'E.) lying about 30 miles north of Alamagan Island, has two active volcanoes. **Mount Pagan**, 1,870 feet (570 meters) high, rises in the northern and larger segment of the island. Several volcanic cones, some of which give off steam, are located in the southern part of the island. A hot spring lies on the eastern side of the southern part of the island. The two parts of the island are connected by a narrow, but high, isthmus. The island is rugged, except for a low level marshland lying south of Mount Pagan. Two lakes are located between the mountain and the northwest coast. The western lake, which is separated from the sea by a sand bar, 50 yards wide, is salty. The shores of the island are steep and rocky, except for some sandy beaches along Apaan Bay. Casuarina and coconut trees grow along most of the coastline and lower slopes, but the upper and steeper slopes of the volcanoes appear almost barren. **Apaan Bay** is an open bight off the middle of the west side of Pagan Island. The beach is for the most part steep, exposed to surf, and has a thick growth of shrubs. **Shomushon**, a settlement which contains most of the population of the island, is located at the head of a small inlet that indents the northern end of the bay.

### Anchorage

(103) Anchorage may be found in Apaan Bay in a depth of about 60 feet (18.3 meters), southwest of **Bandeera Rock**. Bandeera is a prominent rock, 161 feet (49 meters) high, lying 600 yards northwest of Shomushon. This anchorage is sheltered from winds between northeasterly and easterly, but during westerly winds heavy seas set in, making the anchorage dangerous.

(104) A 24-foot (7.3 meters) shoal is about 800 yards south-southwest of Bandeera Rock. A shoal, with depths less than 36 feet (11 meters) over it, projects 400 yards south-southwest from the 24-foot (11-meter) shoal.

(105) **Agrihan Island** (18°46'N., 145°40'E.), lying about 33 miles north of Pagan Island, has two peaks. The highest peak rises to 3,166 feet (965 meters). The island is of volcanic origin and has a large crater. The southwest side forms a gentle slope with a shore of black sand. **Agrihan**, a small settlement, is located near the southwest end of the island. A prominent church is about a mile northwest of the southern extremity of Agrihan Island. It was reported that the island was visible from a distance of 26 miles. Agrihan Island serves as a good radar target from a distance of 31 miles. A westerly current with a rate of 1¼ knots was observed in

August, in a position about 6 miles northwesterly of Agrihan Island.

### Anchorage

(106) Anchorage may be taken in 14 fathoms (26 meters), sand and gravel bottom, about 650 yards off the beach fronting the settlement of Agrihan; however, it is unsafe during strong southerly or westerly winds, when there is a heavy swell.

(107) **Asuncion Island** (19°40'N., 145°24'E.), lying about 55 miles north of Agrihan Island, is a volcanic cone rising steeply to a height of 2,923 feet (891 meters). White smoke occasionally emits from this cone. On the northeast and east sides there are some prominent crevices and broken cliffs, from the cracks in which smoke emits. The slope is gentle at the southwestern foot of the mountain, and coconut palms grow sparsely amongst dense stunted trees. The south coast is fronted by a pebble beach; the remaining coasts are precipitous.

(108) In 1955, breakers and discolored water were reported to extend about ½ mile offshore from the northeast end of the island.

(109) Asuncion Island is reported to be radar conspicuous from a distance of up to 48 miles.

(110) In 1969, it was reported that Asuncion Island lay 2 miles north of its charted position.

(111) In 1953, a bank, with a depth of 27 fathoms (49 meters) over it was reported to lie about 5½ miles southeast, and another, with a depth of 58 fathoms (106 meters) over it lies 16 miles south, of Asuncion Island.

(112) In 1945, depths of 52 and 60 fathoms (95 and 110 meters) were reported to lie about 85 miles west-southwest of Asuncion Island.

(113) **Maug Islands** (20°01'N., 145°14'E.), lying about 24 miles north-northwest of Asuncion Island, are comprised of three rocky, uninhabited islands; named North, East and West. This group has the appearance of a conical volcanic peak that has partially collapsed. **North Island**, 748 feet (228 meters) high, is the highest but smallest. This island, together with **East Island**, and **West Island**, form a circle that encloses a lagoon. The steep sides of East Island are covered with grass and low bushes, and the higher slopes are covered with trees and coconut palms. A tower is on the summit of East Island. In 1958, the ruins of what appeared to be a fishing station were reported on the north end of the same island.

(114) In 1965, it was reported that Maug Islands were incorrectly charted. In 1977, Maug Island was reported to be a fair radar target from distances up to 38 miles.

### Local magnetic anomaly

(115) A local magnetic anomaly amounting to 3°W has been observed near East Island, and up to 7° near West Island.

(116) **Supply Reef**, with a depth of 27 feet (8.2 meters) over it, lies about 10 miles northwest of North Island. Supply Reef is reported to be a circular reef of about 300-yard diameter, marked by discolored water and by breaking seas.

(117) Tidal currents set easterly across the south entrance of the lagoon at a rate of ¾ knot during the flood. They set north through the entrance at a rate of ¼ knot during the ebb.

### Depths-Limitations

(118) South Passage, about 600 yards wide and swept to depths of 59 feet (18 meters) and 48 feet (14.6 meters), is the best passage leading into the lagoon. The northeast passage, which has been swept to 15 feet (4.6 meters) over a width of 150 yards, is not recommended, as it is fully exposed to the prevailing winds. The northwest passage is foul.

### Anchorages

(119) In 1941, it was reported that safe anchorage could be found, in depths of 20 to 40 fathoms (37 to 73 meters), about halfway between the west end of North Island and the southwest end of East Island; rock bottom.

(120) Vessels can anchor off the northern part of the west side of East Island.

(121) A vessel reported anchoring in 16 fathoms (29 meters), black sand bottom, with the northern point of East Island bearing 056°. However, this anchorage was reported unsafe due to swells rolling in through the northeast passage.

(122) **Farallon de Pajaros** (20°32'N., 144°54'E.), lying about 36 miles north-northwest of Maug Islands, is the most northern of the Mariana Islands and it is an active volcano; its summit forming a regular cone of ashes 1,047 feet (319 meters) high.

(123) In 1974, a shoal, with a depth of 10 feet (3 meters) over it, was reported to lie 115 miles northwest of Farallon de Pajaros. Submarine volcanic activity has been reported in this vicinity.

(124) Farallon de Pajaros is reported to be visible from a distance of 40 miles; at night the crater glow can be seen for 15 miles. In 1967, it was reported that the volcano appeared as a well defined shadow at night from a distance of 27 miles. Farallon de Pajaros is radar conspicuous from a distance of 29 miles. The northern, southern, and eastern coast are precipitous. All coasts are rocky and steep-to. There is no anchorage. The

island is barren, except near the high rock on the southeast side, where there is some coarse grass.

(125) A high rock is connected to the southeast side of the island. Several smaller rocks, one of which is prominent, are located about 150 yards southeast of the high rock. A rock lies about 300 yards offshore of a position located about 600 yards southeast of the southwestern end of the island. There is a depth of less than 6 feet (1.8 meters) over this rock.

(126) **Stingray Shoal**, having a depth of 8 fathoms (14.6 meters), is located in approximate position 20°30'N., 142°26'E. The shoal has not been examined, and should be given a wide berth.